UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte XIANGXIN BI, NOBUYUKI KAMBE,
SUJEET KUMAR, and
JAMES T. GARDNER

Appeal No. 2006-0712
Application No. 09/606,884

ON BRIEF

Before GARRIS, WARREN, and WALTZ, *Administrative Patent Judges*.
WALTZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the primary examiner's final rejection of claims 47 through 52.[1] The remaining claims pending in this application are claims 1, 4 through 11, 13 through 28, and 30 through 46, all of which have been allowed by the

---

[1]An amendment subsequent to the final rejection was submitted by appellants and entered by the examiner (see the amendment dated Mar. 5, 2004, entered as per the Advisory Action dated Mar. 23, 2004; Brief, page 2). We note that the word "collection" in claims 48-50 does not find antecedent basis in claim 47.

examiner (Brief, page 2; Answer, page 2, ¶(3)). We have jurisdiction pursuant to 35 U.S.C. § 134.

According to appellants, the invention is directed to cathode compositions comprising submicron vanadium oxide particles and a binder, where these particles provide superior battery performance, especially in lithium-based batteries (Brief, page 2). Representative independent claim 47 is reproduced below:

> 47. A cathode composition comprising vanadium oxide particles having an average diameter from about 5 nm to about 500 nm and a binder.

The examiner has relied on Koksbang, U.S. Patent No. 5,549,880, issued on Aug. 27, 1996, as the sole evidence of unpatentability (Answer, page 3). Claims 47-52 stand rejected under 35 U.S.C. § 102(a) and (e) as anticipated by Koksbang (*id.*). For reasons stated in the Brief, Reply Brief, and below, we *reverse* the rejection on appeal.

OPINION

The examiner finds that Koksbang discloses secondary lithium batteries comprising a "lithiated vanadium oxide cathode active material," a lithium metal anode, and a polymer electrolyte or solid electrolyte separator, where the vanadium oxide particles are

"in the form of a fine powder having a surprisingly small particle size on the order of 0.1 to 5 microns" (Answer, page 3).

The initial burden of establishing unpatentability, on any ground, rests with the examiner. *See In re Oetiker,* 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). As correctly argued by appellants (Brief, pages 8-10; Reply Brief, pages 2-3), Koksbang does not disclose or suggest that the range of particle sizes taught is an *average* size or diameter as required by claim 47 on appeal and the examiner has not convincingly established that the disclosure of Koksbang should be interpreted or construed as an "average" size or diameter (Answer, page 4). The examiner has cited the different methods of preparation taught by Koksbang as evidence that it is "reasonable" to interpret the range taught by the reference as a range of average particle sizes, which thus overlap with the claimed range (*id.*). This evidence is not convincing for the following reasons. As correctly argued by appellants (Reply Brief, page 2), there is no disclosure or suggestion in Koksbang that the variation in reaction starting materials or parameters would alter the product properties, e.g., the particle sizes of the product (see col. 4, ll. 15-65). Furthermore, Koksbang specifically teaches the criticality of the "particle size" of the product, disclosing a range of particle

sizes but never disclosing or suggesting an *average* of particle sizes or diameters (col. 2, ll. 59-61; col. 5, ll. 1-6; and col. 6, ll. 56-60). We note that the examiner has not submitted any substantive evidence that the term "particle size" was known in this art to mean an *average* particle size.

The examiner has found that the vanadium oxide particles disclosed by Koksbang are in the form of a fine powder with a particle size "on the order of 0.1 to 5 microns" (Answer, page 3). However, the examiner admits that Koksbang discloses "a lithiated vanadium oxide cathode active material" (Answer, page 3), and Koksbang only discloses particle sizes for the *lithium* vanadium oxide product (col. 2, ll. 59-61; col. 5, ll. 1-6; and col. 6, ll. 56-61). We find no disclosure in Koksbang of any particle size for the vanadium oxide per se (e.g., see col. 4, ll. 15-40). We have construed the term "vanadium oxide particles" as found in claim 47 on appeal with "the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art," taking into account any enlightenment of the term in the specification. *In re Morris,* 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). Appellants' specification discloses vanadium oxide nanoparticles per se, as well as the production of only vanadium oxide (see Figures 5-12; specification,

page 4, ll. 19-21; page 5, l. 18-page 6, l. 17; and page 14, l. 8 *et seq.*). Although the transitional term "comprising" opens claim 47 on appeal to other elements or components,[2] we determine that the claimed "vanadium oxide particles," as understood by one of ordinary skill in this art and consistent with the specification, does not encompass other materials such as intercalated lithium.[3]

For the foregoing reasons and those set forth in the Brief and Reply Brief, we determine that the examiner has failed to establish a prima facie case of anticipation in view of Koksbang. Therefore we cannot sustain the rejection on appeal.

---

[2]*See Vehicular Techs. v. Titan Wheel Int'l, Inc.*, 212 F.3d 1377, 1383, 54 USPQ2d 1841, 1845 (Fed. Cir. 2000)("A drafter uses the term 'comprising' to mean 'I claim at least what follows and potentially more.'").

[3]See related Appl. No. 09/246,076, now U.S. Patent No. 6,225,007 B1, issued May 1, 2001.

The decision of the examiner is reversed.

REVERSED

BRADLEY R. GARRIS)
Administrative Patent Judge)
)
)
)
CHARLES F. WARREN) BOARD OF PATENT
Administrative Patent Judge) APPEALS
) AND
) INTERFERENCES
)
)
THOMAS A. WALTZ)
Administrative Patent Judge)

TAW/sld

PETER S. DARDI
PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A.
4800 IDS CENTER
80 SOUTH 8TH STREET
MINNEAPOLIS, MN 55402-2100